

CLAIMS

B1
Substantive
What is claimed is:

1. A networked electronic ordnance system, comprising a plurality of pyrotechnic devices, connected by a network, each said pyrotechnic device comprising a logic device having a unique identifier.
2. The networked electronic ordnance system of claim 1, further comprising a bus controller operably connected to said plurality of pyrotechnic devices.
3. The networked electronic ordnance system of claim 2, wherein said bus controller is adapted to selectively address one or more of said pyrotechnic devices using said unique identifiers.
4. The networked electronic ordnance system of claim 2, wherein said bus controller transmits and receives multiplexed digital signals over said network.
5. The networked electronic ordnance system of claim 1, wherein at least one of said pyrotechnic devices further comprises an energy reserve capacitor electrically connected to said logic device.
6. The networked electronic ordnance system of claim 5, further comprising a bleed resistor electrically connected to said energy reserve capacitor.

7. The networked electronic ordnance system of claim 1, wherein each pyrotechnic device further comprises an initiator comprising
- a pyrotechnic assembly, and
 - an adjacent electronic assembly electrically connected to said logic device.
8. The networked electronic ordnance system of claim 7, wherein said electronic assembly comprises an energy reserve capacitor.
9. The networked electronic ordnance system of claim 8, further comprising a bleed resistor electrically connected to said energy reserve capacitor.
10. The networked electronic ordnance system of claim 1, wherein each pyrotechnic device comprises a bus interface electrically connected to said logic device.
11. The networked electronic ordnance system of claim 1, wherein said network is serial.
12. The networked electronic ordnance system of claim 1, wherein said network is parallel.
13. The networked electronic ordnance system of claim 1, wherein said network comprises at least one twisted shielded pair cable.

14. A pyrotechnic device adapted for use in a pyrotechnic system, comprising:
- a logic device having a unique identifier; and
 - an initiator comprising
 - a pyrotechnic assembly and
 - an adjacent electronic assembly electrically connected to said logic device.
15. The pyrotechnic device of claim 14, further comprising an energy reserve capacitor electrically connected to said logic device.
16. The pyrotechnic device of claim 15, further comprising a bleed resistor electrically connected to said energy reserve capacitor.
17. The pyrotechnic device of claim 14, wherein said electronic assembly comprises an energy reserve capacitor.
18. The pyrotechnic device of claim 17, further comprising a bleed resistor electrically connected to said energy reserve capacitor.
19. The pyrotechnic device of claim 14, further comprising a bus interface electrically connected to said logic device.

Sub A3
20. A method for operating a pyrotechnic device connected to a bus controller through a network, the pyrotechnic device having a logic device associated with a unique identifier, a bus interface, and an initiator, comprising:

transmitting a digital arming command from the bus controller to the pyrotechnic device, said digital arming command using the unique identifier of the logic device associated with the pyrotechnic device.

21. The method of claim 20, further comprising:

altering the analog condition of the network to a firing condition; and
transmitting a digital firing command having an address frame from the bus controller to the armed pyrotechnic device.

Sub A4
22. The method of claim 20, wherein said address frame comprises the unique identifier of the logic device associated with the pyrotechnic device.

23. The method of claim 20, wherein said address frame comprises an all-fire signifier.

24. The method of claim 20, wherein said arming step further comprises storing activation energy in the pyrotechnic device in response to said digital arming command.

25. The method of claim 24, wherein said firing step further comprises releasing said activation energy into the initiator in response to said digital firing command.

26. The method of claim 20, further comprising:

transmitting a digital disarming command from the bus controller to the armed pyrotechnic device, said digital disarming command using the unique identifier of the logic device associated with the pyrotechnic device; and
dissipating said activation energy stored in the armed pyrotechnic device in response to said digital disarming command.

27. The method of claim 20, further comprising:

transmitting a digital test command from the bus controller to the pyrotechnic device, said digital test command using the unique identifier of the logic device associated with the pyrotechnic device; and
receiving a response to said digital test command from the pyrotechnic device.

Sub A5
28. A method for operating a pyrotechnic device having a logic device associated with a unique identifier, a bus interface, and an initiator, the pyrotechnic device connected to a bus controller through a network, comprising:

receiving a digital arming command from the bus controller, said digital arming command using the unique identifier of the logic device associated with the pyrotechnic device;
recognizing the unique identifier in the digital arming command and the digital arming command;

arming the pyrotechnic device;

receiving a digital firing command having an address frame from the bus controller;

recognizing the contents of the address frame and the digital firing command;

checking the analog condition of the network; and

firing the pyrotechnic device if the analog condition of the network corresponds to an analog firing condition.

29. The method of claim 28, wherein said address frame comprises the unique identifier of the logic device associated with the pyrotechnic device.

30. The method of claim 28, wherein said address frame comprises an all-fire signifier.